

Ch. 4.1/4.2

SCALAR MULTIPLICATION OF MATRICES

MULTIPLY EACH ENTRY OF
THE MATRIX BY A NUMBER
WITH ITS SIGN

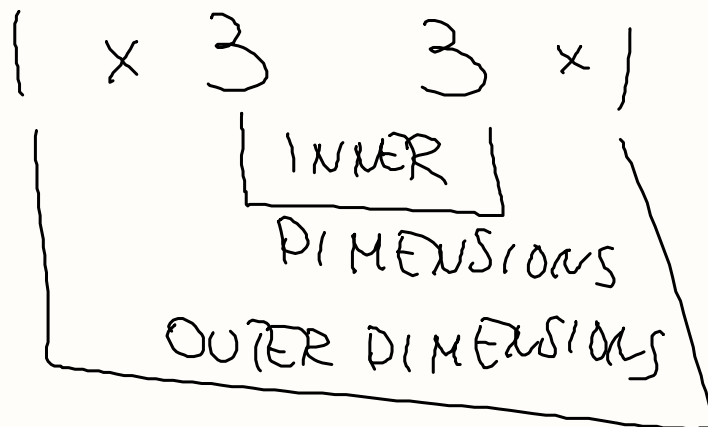
$$A = \begin{bmatrix} 7 & 11 & 0 \\ -3 & 5 & 7 \end{bmatrix} \quad 3 \cdot A = \begin{bmatrix} 21 & 33 & 0 \\ -9 & 15 & 21 \end{bmatrix}$$

$$-3B$$
$$B = \begin{bmatrix} 5 & 0 & 21 \\ -11 & 7 & 37 \end{bmatrix}$$

$$-3B = \begin{bmatrix} -15 & 0 & -63 \\ 33 & -21 & -111 \end{bmatrix}$$

4.2 MULTIPLY MATRICES

$$\begin{matrix} [1 \times 3] & \times & [3 \times 1] \\ \text{ROW} & & \text{COLUMNS} \end{matrix}$$



WE CAN MULTIPLY TWO MATRICES
WHEN INNER AND OUTER
DIMENSIONS OF THE MATRIX
ARE THE SAME

$$\begin{array}{c} 1 \times 3 \quad 3 \times 1 = 1 \times 1 \\ \underbrace{\hspace{10em}} \end{array}$$

$$A+B=B+A$$

$$AB \neq BA$$

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$$\begin{array}{rcl}
 [A] \times [B] & = & [AB] \\
 \text{DIM } 2 \times 3 & \underbrace{\quad 3 \times 3 \quad} & 2 \times 3
 \end{array}$$

$$\begin{array}{rcl}
 [B] \times [A] & \nrightarrow & \\
 \text{DIM } 3 \times 3 & 2 \times 3 & \\
 & \underbrace{\quad \times \quad} &
 \end{array}$$

LESS 4.2
 [A] 3x2 [B] 2x3
 p. 953 TOP
 #7